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Poplar River
Cooperative
Monitoring
Arrangement ...
data exchange,
United States
contribution

POPLAR RIVER

COOPERATIVE MONITORING

ARRANGEMENT

1987

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INTRODUCTION

1987 - SECOND QUARTER DATA EXCHANGE
POPLAR RIVER BASIN

The Poplar River Bilateral Monitoring Committee was authorized by the Governments of Canada and the United States under the Poplar River Cooperative Monitoring Arrangement dated September 23, 1980. The Committee is composed of representatives of the Governments of the United States, State of Montana, Canada, and Province of Saskatchewan. In addition to the representatives of governments, two ex officio members, who are local representatives of the State of Montana and Province of Saskatchewan, participate in activities of the Committee.

One responsibility of the Committee includes the on-going quarterly exchange of results of water quantity, water quality and air quality monitoring programs. The programs are being conducted in Canada and the United States at or near the International Boundary by cooperative monitoring agencies in accordance with the Technical Monitoring Schedules. Monitoring information is to be transmitted by each Committee co-chairman to his counterpart co-chairman within a reasonable period after the termination of each quarter. In addition, preselected parties are to receive copies of the quarterly exchange.

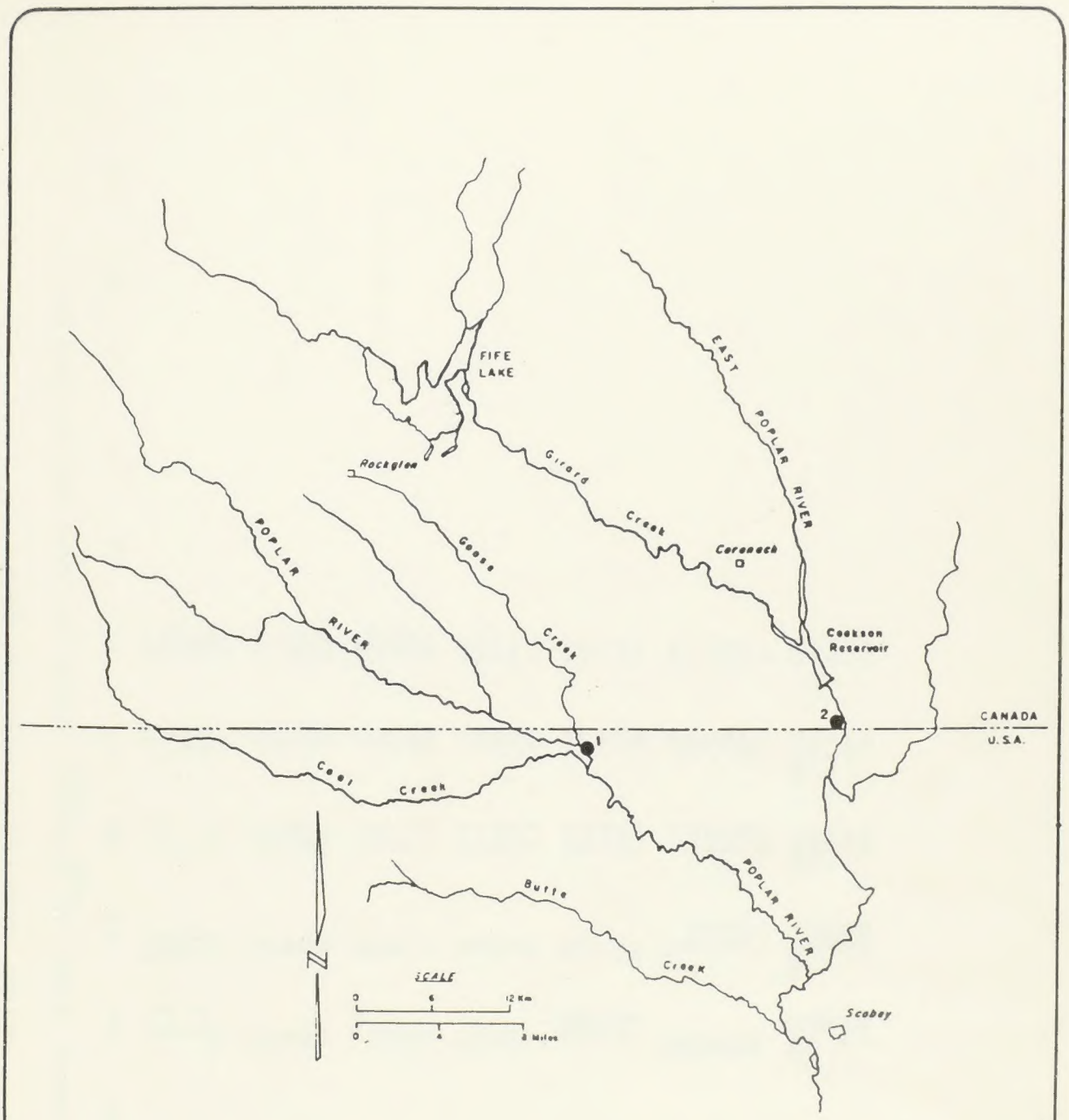
This package represents information collected by United States sources for the Poplar River basin during the second quarter of 1987. Included are data for surface water quantity, surface water quality, ground-water levels, and air quality. The large amount of air quality data precludes it from being incorporated into the data report. Hence, it is separate.

STREAMFLOW MONITORING

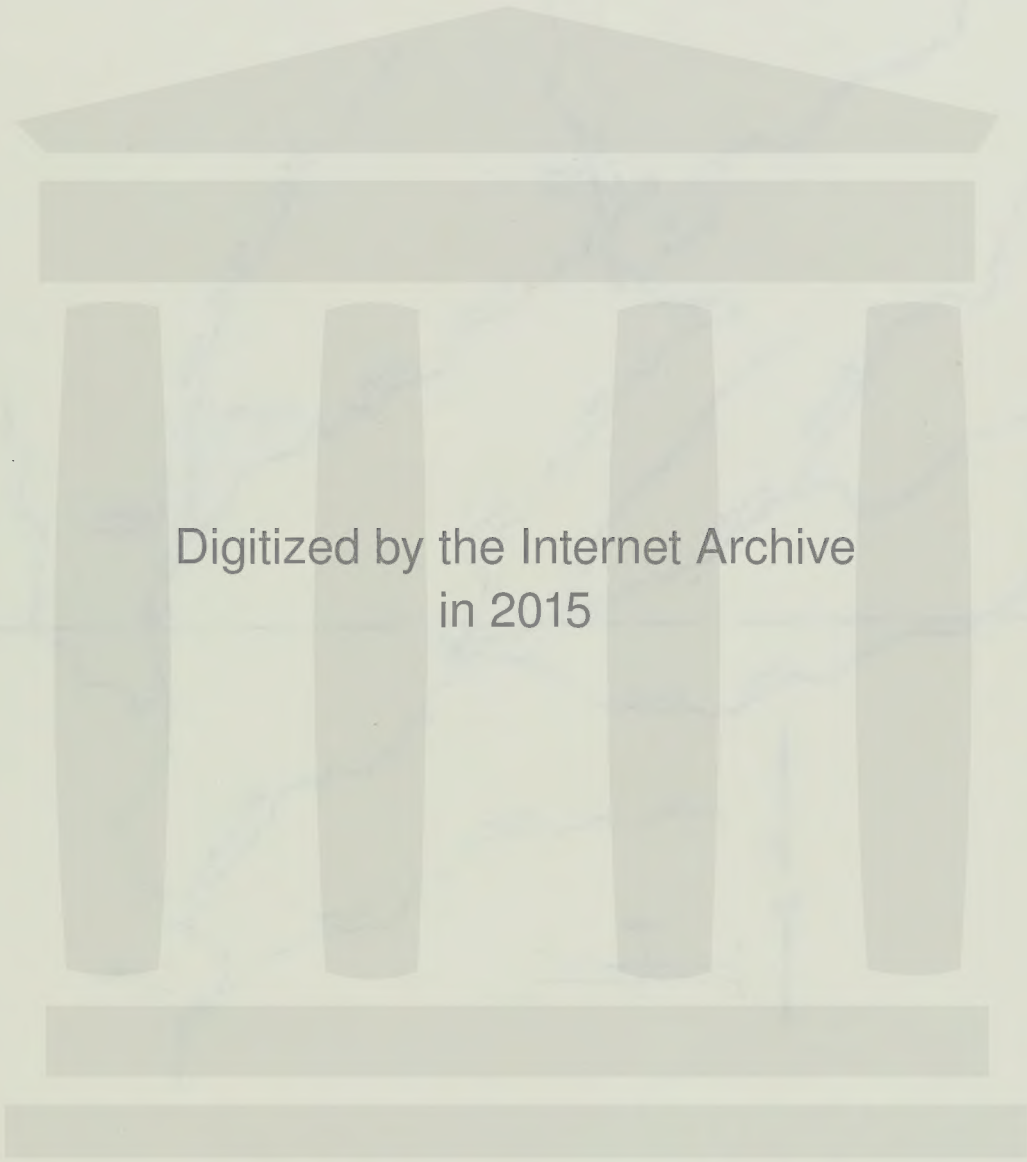
Responsible Agency: United States Geological Survey

No. on Map	Station Number	Station Name
*1	06178000 (11AE008)	Poplar River at International Boundary
*2	06178500 (11AE003)	East Poplar River at International Boundary

* International gauging station



HYDROMETRIC GAUGING STATIONS (UNITED STATES)



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06178000 POPLAR RIVER AT INTERNATIONAL BOUNDARY

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1937 TO DECEMBER 1937
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			5.0	160	8.3	1.8	.09					
2			4.0	220	9.0	1.4	.08					
3			5.0	150	11	.93	.09					
4			8.0	93	9.0	.85	.06					
5			10	47	7.6	.66	.07					
6			15	34	6.7	.49	.07					
7			20	28	5.8	.23	.07					
8			15	26	5.1	.18	.07					
9			12	26	3.9	.18	.05					
10			10	24	3.4	.25	.28					
11			9.0	22	3.3	.23	.08					
12			10	21	3.1	.21	.06					
13			11	20	2.7	.18	.05					
14			12	19	2.4	.16	.05					
15			11	17	2.3	.14	.04					
16			11	16	2.2	.17	.04					
17			11	15	2.4	.16	---					
18			10	14	2.6	.15	---					
19			10	14	2.8	.23	---					
20			10	13	2.8	.30	---					
21			9.0	13	2.9	.19	---					
22			9.0	12	2.4	.17	---					
23			8.0	12	2.2	.18	---					
24			8.0	12	2.0	.12	---					
25			8.0	11	1.9	.09	---					
26			10	10	1.9	.10	---					
27			14	9.6	2.2	.09	---					
28			20	9.1	3.6	.10	---					
29			28	8.6	3.7	.10	---					
30			38	8.3	3.0	.09	---					
31			50	---	2.1	---	---					
TOTAL			411.0	1084.6	124.3	10.13	---					
MEAN			13.3	36.2	4.01	.34	---					
MAX			50	220	11	1.8	---					
MIN			4.0	8.3	1.9	.09	---					
AC-FT			815	2150	247	20	---					

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1987 TO DECEMBER 1987
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.6	2.8	2.8	4.3	16	6.0	2.5					
2	2.6	2.8	2.8	4.1	13	4.2	2.2					
3	2.6	2.8	3.0	3.8	10	3.0	2.1					
4	2.6	2.8	3.3	3.5	9.8	2.6	2.2					
5	2.6	2.8	3.5	3.5	12	2.5	2.3					
6	2.6	2.9	3.6	3.5	11	2.7	3.0					
7	2.5	3.1	3.7	3.5	11	2.5	2.7					
8	2.5	3.0	3.3	3.3	12	2.3	2.4					
9	2.5	2.9	2.9	4.6	11	2.2	2.4					
10	2.4	3.0	2.8	6.7	12	2.8	3.3					
11	2.5	2.9	2.8	4.7	11	2.8	3.2					
12	2.6	3.1	2.8	3.9	12	2.6	2.8					
13	2.7	2.9	2.9	3.4	12	2.4	2.6					
14	2.5	2.9	3.0	3.1	12	2.2	2.5					
15	2.3	2.9	3.0	3.1	12	2.1	2.4					
16	2.4	2.8	3.0	4.2	12	2.2	2.3					
17	2.4	2.9	3.0	17	12	2.3	---					
18	2.5	2.9	3.0	18	12	2.1	---					
19	2.5	3.0	3.0	23	13	2.2	---					
20	2.5	3.0	3.1	20	12	2.6	---					
21	2.6	2.9	3.2	20	11	2.5	---					
22	2.6	2.9	3.2	20	12	2.5	---					
23	2.5	2.9	3.1	19	12	2.5	---					
24	2.6	2.8	3.0	19	12	2.4	---					
25	2.5	2.9	3.1	19	12	2.3	---					
26	2.6	3.0	3.5	19	12	2.2	---					
27	2.6	2.8	3.7	19	13	2.2	---					
28	2.6	2.8	3.2	19	12	2.3	---					
29	2.7	---	3.0	18	12	2.3	---					
30	2.8	---	3.1	18	12	2.3	---					
31	2.8	---	3.7	---	12	---	---					
TOTAL	79.3	81.2	97.1	331.2	369.8	77.8	---					
MEAN	2.56	2.90	3.13	11.0	11.9	2.59	---					
MAX	2.8	3.1	3.7	23	16	6.0	---					
MIN	2.3	2.8	2.8	3.1	9.8	2.1	---					
AC-FT	157	161	193	657	733	154	---					

SURFACE WATER QUALITY MONITORING

Station Location

Responsible Agency: U.S. Geological Survey

No. on Map	USGS Station No.	Station Name
1	06178000	Poplar River at International Boundary
2	06178500	East Poplar River at International Boundary
3	06179000	East Poplar River near Scobey

PARAMETERS

WATSTORE* Code	Parameter	Analytical method	No.	Sampling Frequency 1	2	3
90410	Alkalinity-lab	Elect. Titration		M	M	M
01106	Aluminum-diss	AA		SA	SA	SA
00610	Ammonia-tot	Colorimetric		M	M	M
00625	Ammonia+Org N-tot	Colorimetric		M	M	M
01000	Arsenic-diss	AA, hydride		SA	SA	SA
01002	Arsenic-tot	AA, hydride		A	A	A
01010	Beryllium-diss	AA		SA	SA	SA
01012	Beryllium-tot/rec	AA-Persulfate		A	A	A
01020	Boron-diss	ICP		M	M	M
01025	Cadmium-diss	AA		SA	SA	SA
01027	Cadmium-tot/rec	AA-persulfate		A	A	A
00915	Calcium	AA		M	M	M
00680	Carbon-tot Org	Wet Oxidation		SA	SA	SA
00940	Chloride-diss	Ion chromatography		M	M	M
01030	Chromium-diss	AA		SA	SA	SA
01034	Chromium-tot/rec	AA-persulfate		A	A	A
00080	Color	Electrometric, visual		M	M	M
00095	Conductivity	Wheatstone Bridge		M	D	M
01040	Copper-diss	AA		SA	SA	SA
01042	Copper-tot/rec	AA-persulfate		A	A	A
00061	Discharge-inst	Direct measur.		M	M	M
00950	Fluoride	Electrometric		M	M	M
01046	Iron-diss	AA		M	M	M
01045	Iron-tot/rec	AA-persulfate		A	A	A
01049	Lead-diss	AA		SA	SA	SA
01051	Lead-tot/rec	AA-persulfate		A	A	A
00925	Magnesium-diss	AA		M	M	M
01056	Manganese-diss	AA		SA	SA	SA
01055	Manganese-tot/rec	AA-persulfate		A	A	A
01065	Nickel-diss	AA		SA	SA	SA
01067	Nickel tot/rec	AA-persulfate		A	A	A
00615	Nitrite-tot	Colorimetric		M	M	M
00630	Nitrate+Nitrite-tot	Colorimetric		M	M	M
00300	Oxygen-diss	Winkler/meter		M	M	M
70507	Phos, Ortho-tot	Colorimetric		M	M	M
00400	pH	Electrometric		M	M	M
00665	Phophorous-tot	Colorimetric		M	M	M
00935	Potassium-diss	AA		M	M	M
00931	SAR	Calculated		M	M	M
80154	Sediment-conc.	Filtration-gravimetric		M	M	M
80155	Sediment-load	Calculated		M	M	M
01145	Selenium-diss	AA, hydride		SA	SA	SA
01147	Selenium tot/rec	AA, hydride		A	A	A
00955	Silica	Colorimetric		M	M	M
00930	Sodium	AA		M	M	M
00945	Sulfate-diss	Colorimetric		M	M	M
70301	Total Dissolved Solids	Calculated		M	M	M
00010	Temp Water	Toluene		M	M	M
00020	Temp Air	Toluene		M	M	M
00076	Turbidity	Nephelometric		M	M	M
80020	Uranium-diss	Fluorimetric		-	MC	-
01090	Zinc-diss	AA		SA	SA	SA
01092	Zinc-tot/rec	AA-persulfate		A	A	A

*Computer storage and retrieval system - USGS

Symbols: C-continuous; D-daily; M-monthly; MC-monthly composite; A-annually at high flow; SA-semi-annually at low and high flow; AA-atomic absorption; tot-total; rec-recoverable, diss-dissolved

SURFACE WATER QUALITY MONITORING STATIONS (UNITED STATES)

06178000 - POPLAR RIVER AT INTERNATIONAL BOUNDARY

WATER QUALITY DATA

DATE	TIME	TEMPERATURE WATER (DEG C) (00010)	TEMPERATURE AIR (DEG C) (00020)	BAROMETRIC PRESSURE (MM OF HG) (00025)	CLOUD COVER (PERCENT) (00032)	WIND SPEED (MILES PER HOUR) (00035)	WEATHER (WMO CODE NUMBER) (00041)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TURBIDITY (NTU) (00076)	COLOR (PLATINUM-COBALT UNITS) (00080)	SPECIFIC CONDUCTANCE (US/CM) (00095)	(
FEB 1987												
18...	1000	0.0	0.0	707	0	E5.0	0	5.0	--	90	482	
MAR												
17...	1200	0.5	1.0	703	100	E5.0	2	11	1.2	55	735	
APR												
15...	1030	9.0	15.0	693	10	E20	1	17	2.3	45	780	
MAY												
19...	1300	15.0	20.0	699	70	E0	3	2.7	--	--	1160	
JUN												
17...	1500	24.0	25.0	700	0	E20	0	0.16	--	--	1690	
JUL												
16...	1030	21.0	21.0	695	60	E15	1	0.05	--	--	1880	

DATE	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	PH (STANDARD UNITS) (00400)	PH LAB (STANDARD UNITS) (00403)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	N (0 CA (00
FEB 1987												
18...	78	8.20	8.03	2.6	1.1	0.020	0.010	1.1	<0.100	0.110	--	
MAR												
17...	78	8.00	7.99	6.1	0.99	0.010	<0.010	1.0	<0.100	0.050	8.5	
APR												
15...	99	8.61	8.40	1.7	0.99	0.010	<0.010	1.0	<0.100	0.050	--	
MAY												
19...	139	9.02	--	0	--	--	--	--	--	--	--	
JUN												
17...	159	8.98	--	0	--	--	--	--	--	--	--	
JUL												
16...	92	9.13	--	0	--	--	--	--	--	--	--	

06178000 - POPLAR RIVER AT INTERNATIONAL BOUNDARY

WATER QUALITY DATA

DATE	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	PERCENT SODIUM (00932)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
FEB 1987											
18...	0	32	21	41	1	33	10	3.8	55	0.20	13
MAR											
17...	0	45	30	78	2	41	7.7	4.4	95	0.30	12
APR											
15...	0	47	34	76	2	38	7.1	3.1	81	0.30	8.0
MAY											
19...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	--	--	--	--	--	--	--	--	--	--	--

DATE	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, DISSOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
FEB 1987											
18...	--	--	--	--	280	--	--	--	--	--	--
MAR											
17...	1	2	<0.5	<10	460	<1	<1	<10	<10	1	4
APR											
15...	--	--	--	--	500	--	--	--	--	--	--
MAY											
19...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	--	--	--	--	--	--	--	--	--	--	--

06178000 - POPLAR RIVER AT INTERNATIONAL BOUNDARY

WATER QUALITY DATA

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)
FEB 1987											
18...	--	200	--	--	--	--	--	--	--	--	--
MAR											
17...	280	150	<5	<5	20	14	<1	5	6	<10	10
APR											
15...	--	100	--	--	--	--	--	--	--	--	--
MAY											
19...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	--	--	--	--	--	--	--	--	--	--	--

DATE	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SPECIFIC CONDUCTANCE LAB (US/CM) (90095)	ALKALINITY LAB (MG/L AS CACO3) (90410)
FEB 1987											
18...	--	--	300	4.1	0.41	55	0.050	9	0.12	494	214
MAR											
17...	<1	<1	460	13	0.63	60	0.010	2	0.06	705	316
APR											
15...	--	--	480	22	0.65	57	0.010	12	0.56	762	366
MAY											
19...	--	--	--	--	--	--	--	29	0.21	--	--
JUN											
17...	--	--	--	--	--	41	--	10	0.00	--	--
JUL											
16...	--	--	--	--	--	50	--	30	0.00	--	--

06178500 - EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY

WATER QUALITY DATA

DATE	TIME	TEMPERATURE WATER (DEG C) (00010)	TEMPERATURE AIR (DEG C) (00020)	BAROMETRIC PRESSURE (MM OF HG) (00025)	CLOUD COVER (PERCENT) (00032)	WIND SPEED (MILES PER HOUR) (00035)	WEATHER (WMO CODE NUMBER) (00041)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TURBIDITY (NTU) (00076)	COLOR (PLATINUM-COBALT UNITS) (00080)	SPECIFIC CONDUCTANCE (US/CM) (00095)	OXYGEN, DISSOLVED (MG/L) (00300)
JAN 1987												
14...	1300	0.0	-8.0	711	100	E20	2	3.6	1.4	7	1420	10.3
FEB												
18...	1130	0.0	2.0	708	0	E5.0	0	3.3	--	10	1400	12.4
MAR												
17...	1430	0.5	1.0	703	100	E5.0	2	3.2	2.3	18	1400	12.0
APR												
15...	1300	11.0	17.5	697	10	E25	1	2.9	3.5	19	1430	11.2
MAY												
19...	0800	11.5	8.5	700	100	E0	3	12	--	--	1230	3.2
JUN												
17...	1100	21.0	23.0	705	10	E20	1	2.4	--	--	1420	7.0
JUL												
16...	1330	23.0	26.0	697	60	E20	1	2.6	--	--	1500	8.4

DATE	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	PH (STANDARD UNITS) (00400)	PH LAB (STANDARD UNITS) (00403)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
JAN 1987												
14...	74	7.90	7.83	13	0.90	0.09	0.610	<0.010	0.70	0.200	0.010	--
FEB												
18...	92	7.90	7.81	13	0.90	0.30	0.500	<0.010	0.80	0.100	0.010	--
MAR												
17...	91	8.10	7.84	8.1	1.4	0.91	0.390	<0.010	1.3	0.100	0.020	3.5
APR												
15...	112	8.65	8.30	2.2	--	1.3	0.040	<0.010	1.3	<0.100	0.040	--
MAY												
19...	82	8.55	--	0	--	--	--	--	--	--	--	--
JUN												
17...	85	8.50	--	0	--	--	--	--	--	--	--	--
JUL												
16...	103	8.43	--	0	--	--	--	--	--	--	--	--

06178500 - EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY

WATER QUALITY DATA

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	PERCENT SODIUM (00932)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
JAN 1987												
14...	400	0	81	47	190	4	51	6.9	6.0	280	0.30	14
FEB												
18...	400	0	83	47	190	4	50	7.2	6.9	290	0.30	13
MAR												
17...	390	0	78	47	190	4	51	6.6	5.6	280	0.40	13
APR												
15...	350	0	61	49	200	5	54	9.4	5.1	230	0.40	8.2
MAY												
19...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
17...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
16...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, DIS-SOLVED (UG/L AS CR) (01030)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
JAN 1987												
14...	--	--	--	--	1700	--	--	--	--	--	--	--
FEB												
18...	--	--	--	--	1900	--	--	--	--	--	--	--
MAR												
17...	2	3	<0.5	<10	1700	<1	<1	<10	<10	1	4	670
APR												
15...	--	--	--	--	1700	--	--	--	--	--	--	--
MAY												
19...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
17...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
16...	--	--	--	--	--	--	--	--	--	--	--	--

06178500 - EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY

WATER QUALITY DATA

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
JAN 1987											
14...	10	--	--	--	--	--	--	--	--	--	--
FEB											
18...	12	--	--	--	--	--	--	--	--	--	--
MAR											
17...	10	<5	<5	180	180	<1	4	11	<10	<10	<1
APR											
15...	12	--	--	--	--	--	--	--	--	--	--
MAY											
19...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	--	--	--	--	--	--	--	--	--	--	--

DATE	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) (90095)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)
JAN 1987											
14...	--	940	9.2	1.3	26	0.020	4.0	95	0.92	1460	527
FEB											
18...	--	960	8.6	1.3	19	<0.010	4.0	46	0.41	1450	539
MAR											
17...	<1	940	8.1	1.3	7	<0.010	6.2	48	0.41	1410	528
APR											
15...	--	920	7.1	1.2	90	<0.010	--	20	0.15	1420	507
MAY											
19...	--	--	--	--	83	--	--	37	1.2	--	--
JUN											
17...	--	--	--	--	71	--	--	9	0.06	--	--
JUL											
16...	--	--	--	--	66	--	--	19	0.13	--	--

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C) CALENDAR YEAR JANUARY 1987 TO DECEMBER 1987
ONCE-DAILY

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1390	1390	1410	1270	1240	1280						
2	1420	1430	1350	1200	1240	1290						
3	1410	1420	1400	1340	1250	1300						
4	1400	1400	1360	1210	1340	1310						
5	1430	1270	1290	1150	1320	1340						
6	1420	1380	1180	1150	1260	1400						
7	1330	1360	1110	1240	1260	1400						
8	1450	1370	1080	1280	1260	1410						
9	1500	1360	1200	1330	1270	1420						
10	1500	1360	1320	1350	1250	1410						
11	1470	1370	1360	1360	1260	1400						
12	1460	1380	1420	1350	1240	1370						
13	1430	1410	1430	1350	1250	1370						
14	1420	1410	1380	1370	1230	1390						
15	1460	1420	1380	1380	1220	1400						
16	1590	1410	1390	1430	1250	1410						
17	1580	1450	1390	1450	1260	1420						
18	1520	1440	1410	1260	1250	1420						
19	1520	1420	1410	1260	1250	1430						
20	1500	1420	1370	1270	1260	1400						
21	1510	1410	1400	1250	1250	1430						
22	1490	1440	1400	1260	1240	1390						
23	1500	1470	1380	1260	1260	1400						
24	1500	1470	1390	1270	1230	1380						
25	1490	1480	1410	1270	1230	1380						
26	1490	1500	1410	1280	1250	1400						
27	1470	1490	1360	1270	1250	1400						
28	1450	1490	1440	1280	1250	1390						
29	1440	---	1430	1260	1260	1380						
30	1430	---	1480	1260	1240	1380						
31	1430	---	1460	---	1250	---						
TOTAL	45400	39620	42200	38660	38870	41500						
MEAN	1460	1420	1360	1290	1250	1380						
MAX	1590	1500	1480	1450	1340	1430						
MIN	1330	1270	1080	1150	1220	1280						

06179000 - EAST FORK POPLAR RIVER NEAR SCOBEY, MT.

WATER QUALITY DATA

DATE	TIME	TEMPERATURE WATER (DEG C) (00010)	TEMPERATURE AIR (DEG C) (00020)	BAROMETRIC PRESSURE (MM OF HG) (00025)	CLOUD COVER (PERCENT) (00032)	WIND SPEED (MILES PER HOUR) (00035)	WEATHER (WMO CODE NUMBER) (00041)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TURBIDITY (NTU) (00076)	COLOR (PLATINUM-COBALT UNITS) (00080)	SPECIFIC CONDUCTANCE (US/CM) (00095)	OXYGEN, DISSOLVED (MG/L) (00300)
JAN 1987												
15...	0900	0.0	-22.0	720	0	E0	0	3.5	2.2	9	1780	12.8
FEB												
18...	1300	0.0	3.0	709	0	E5.0	0	3.3	2.5	10	1320	11.8
MAR												
17...	1600	0.5	1.0	704	100	E5.0	2	3.5	2.0	16	1040	12.0
APR												
15...	1430	11.0	12.0	697	10	E25	1	5.0	3.5	75	752	9.8
MAY												
20...	0730	11.0	4.0	708	100	E25	3	13	--	--	1340	7.0
JUN												
17...	1300	21.0	23.0	707	10	E20	1	2.5	--	--	1360	10.0
JUL												
16...	1430	22.0	26.0	699	50	E15	1	3.0	--	--	1560	8.6

DATE	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	PH (STANDARD UNITS) (00400)	PH LAB (STANDARD UNITS) (00403)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	HARDNESS (MG/L AS CACO3) (00900)
JAN 1987												
15...	93	8.10	7.94	9.4	0.57	0.030	<0.010	0.60	<0.100	0.020	--	470
FEB												
18...	97	8.20	8.01	5.7	0.28	0.020	<0.010	0.30	<0.100	0.010	--	320
MAR												
17...	90	8.50	8.19	2.3	0.68	0.020	<0.010	0.70	<0.100	0.020	4.3	270
APR												
15...	92	8.81	8.20	0.8	1.4	0.020	<0.010	1.4	<0.100	0.070	--	200
MAY												
20...	69	8.83	--	0	--	--	--	--	--	--	--	--
JUN												
17...	122	9.06	--	0	--	--	--	--	--	--	--	--
JUL												
16...	108	9.69	--	0	--	--	--	--	--	--	--	--

06179000 - EAST FORK POPLAR RIVER NEAR SCOBEY, MT.

WATER QUALITY DATA

DATE	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	PERCENT SODIUM (00932)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
JAN 1987											
15...	0	90	60	250	5	53	8.5	10	360	0.40	6.9
FEB											
18...	0	58	43	170	4	53	6.8	7.8	260	0.30	6.0
MAR											
17...	0	47	36	140	4	53	5.3	5.9	200	0.30	6.0
APR											
15...	0	37	27	85	3	46	9.3	3.6	110	0.30	7.4
MAY											
20...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	--	--	--	--	--	--	--	--	--	--	--
JUL											
15...	--	--	--	--	--	--	--	--	--	--	--

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, DIS-SOLVED (UG/L AS BE) (01010)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, DIS-SOLVED (UG/L AS CR) (01030)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
JAN 1987											
15...	--	--	--	--	2000	--	--	--	--	--	--
FEB											
18...	--	--	--	--	1400	--	--	--	--	--	--
MAR											
17...	1	2	<0.5	<10	1000	<1	<1	<10	<10	1	5
APR											
15...	--	--	--	--	610	--	--	--	--	--	--
MAY											
20...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	--	--	--	--	--	--	--	--	--	--	--
JUL											
15...	--	--	--	--	--	--	--	--	--	--	--

06179000 - EAST FORK POPLAR RIVER NEAR SCOBEY, MT.

WATER QUALITY DATA

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)
JAN 1987											
15...	--	16	--	--	--	--	--	--	--	--	--
FEB											
18...	--	32	--	--	--	--	--	--	--	--	--
MAR											
17...	260	29	<5	<5	30	13	<1	4	3	220	<10
APR											
15...	--	99	--	--	--	--	--	--	--	--	--
MAY											
20...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	--	--	--	--	--	--	--	--	--	--	--

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) (90095)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)
JAN 1987											
15...	--	--	1200	11	1.6	36	0.010	27	0.26	1310	612
FEB											
18...	--	--	840	7.5	1.1	27	<0.010	44	0.39	1250	473
MAR											
17...	<1	<1	670	0.3	0.91	41	<0.010	33	0.31	995	378
APR											
15...	--	--	450	0.1	0.61	97	<0.010	8	0.11	729	286
MAY											
20...	--	--	--	--	--	71	--	40	1.4	--	--
JUN											
17...	--	--	--	--	--	34	--	19	0.13	--	--
JUL											
16...	--	--	--	--	--	87	--	6	0.04	--	--

GROUND WATER LEVELS TO MONITOR

POTENTIAL DRAWDOWN DUE TO

COAL SEAM DEWATERING

Responsible Agency: Montana Bureau of Mines and Geology

No. on Map	Sampling
2 to 22	Determine water levels quarterly

GROUND-WATER LEVEL MEASUREMENTS

Well no.	Depth to water (feet) March 24, 1987	Depth to water (feet) June 23, 1987
2	217.90	217.89
3	81.69	81.92
4	60.75	60.86
5	20.10	20.34
6	20.63	20.78
7	78.48	77.62
8	13.26	14.22
9	13.79	14.76
10	5.69	5.98
11	-0.96	-0.90
12	dry	--
13	134.68	134.71
14	212.36	212.40
15	224.11	224.21
16	37.20	37.06
17	247.95	247.99
18	247.66	247.77
19	126.06	126.06
20	dry	--
21	240.99	240.88
22	14.99	14.62

(-) Indicates water level above land surface

AMBIENT AIR QUALITY MONITORING

Responsible Agency: State of Montana
Air Quality Bureau

No. on Map	Location*	Parameters	Sampling Frequency and Reporting
1	Don Marlenee Ranch	Sulphur dioxide	Hourly averages
		Suspended particulates	24-hour averages
		Wind speed	Hourly averages
		Wind direction	Hourly averages
		Temperature	Hourly averages
		Sulfation rate	Monthly averages
2	Scobey - Richardson	Sulfation rate	Monthly averages
3	Microwave Tower	Sulfation rate	Monthly averages
4	Flaxville	Sulfation rate	Monthly averages
5	TV Tower Hill	Sulfation rate	Monthly averages
6	Scobey-Downtown	Sulfation rate	Monthly averages
7	Four Buttes	Sulfation rate	Monthly averages

METHODS

Sulfur Dioxide	EPA Equivalent Method EQSA-0276-009
Total Suspended Particulates	EPA Reference Method CFR Title 40 Part 50, Appendix B (State of Montana QA Manual Section 1.1.10 and 1.2.10), 24-hour sample once/6 days
Sulfation Rate	Methods of Air Sampling and Analysis, 2nd Edition, "Tentative Method of Analysis of the Sulfation Rate of the Atmosphere (Lead Dioxide Plate Method - Turbidimetric Analysis)," p. 691.

*Continuous monitoring site (#1) will operate through the end of June 1987. Sulfation plate network may be reduced in size to 3-4 sites.

AMBIENT AIR QUALITY MONITORING (UNITED STATES)

METRIC CONVERSION FACTORS

ac	=	4,047 m^2 = 0.4047 ha
ac-ft	=	1,233.5 m^3 = 1.2335 dam^3
C°	=	1.8 F°
cm	=	0.3937 in.
cm^2	=	0.155 in^2
dam^3	=	1,000 m^3 = 0.8107 ac-ft
ft^3	=	28.3171 x $10^{-3} m^3$
ha	=	10,000 m^2 = 2.471 ac
hm	=	100 m = 328.08 ft
hm^3	=	1 x 10^6 m^3
I.gpm	=	0.0758 L/s
in	=	2.54 cm
kg	=	2.20462 lb = 1.1 x 10^{-3} tons
km	=	0.62137 miles
km^2	=	0.3861 mi^2
L	=	0.3532 ft^3 = 0.21997 I. gal = 0.26420 U.S. gal
L/s	=	0.035 cfs = 13.193 I.gpm = 15.848 U.S. gpm
m	=	3.2808 ft
m^2	=	10.7636 ft^2
m^3	=	1,000 L = 35.3144 ft^3 = 219.97 I. gal = 264.2 U.S. gal
m^3/s	=	35.314 cfs
mm	=	0.00328 ft
tonne	=	1,000 kg = 1.1023 ton (short)
U.S. gpm	=	0.0631 L/s

For Air Samples

ppm = 100 pphm = 1000 X (Molecular Weight of substance/24.45) mg/m^3